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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/601,558	06/24/2003	Yasuhiro Shimada	60188-617	7768

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EXAMINER

LE, THAO X

ART UNIT	PAPER NUMBER
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2814

DATE MAILED: 08/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/601,558	Applicant(s) SHIMADA ET AL.	
	Examiner Thao X Le	Art Unit 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Ferroelectric Memory Device.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 3-7, 8, 10-15, 17-18 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6727536 to Hasegawa et al.

Regarding claims 1, Hasegawa discloses a memory device in fig. 2 comprising: a memory cell A100 with a capacitor 100 including a first electrode 12, column 7 line 25, a ferroelectric film 14, column 7 line 21, and a second electrode 16, column 7 line 26, over the substrate 110.

The process limitations “ which are formed in this order, wherein the ferroelectric film is selectively grown ’ of claim 1 do not carry weight in a claim drawn to structure. In re Thorpe, 277 USPQ 964 (Fed. Cir. 1985).

Regarding claims 3-4, the process limitation ‘ wherein the ferroelectric film is grown to be self-organized by physical or chemical interaction’ of claim 3 and ‘ wherein the ferroelectric film is grown in a vapor phase or in a liquid phase’ do not carry weight in a claim drawn to structure. In re Thorpe, 277 USPQ 964 (Fed. Cir. 1985).

Regarding claims 5-7, Hasegawa discloses a memory device wherein the capacitor is connected to a selective switching device 112, wherein the selective switching device 112 is formed on the substrate or between the substrate and the first electrode, fig. 2, wherein the selective switching device is a transistor, column 8 line 24.

Regarding claim 8, Hasegawa discloses a memory device in fig. 30 comprising: a first capacitor array layer 100a including a plurality of capacitors each including a first electrode 12, a first ferroelectric film 14 and a second electrode 16 which are formed over a substrate 110, and a second capacitor array 100b layer including a plurality of capacitors each including a third electrode 12, a second ferroelectric film 14 and a fourth electrode 16, over the substrate 110, the second capacitor array 100b layer being formed over the first capacitor array layer 100a with an insulating film 36, column 21 line 10, interposed between the first and second capacitor array layers.

The process limitations “ which are formed in this order, wherein the ferroelectric film is selectively grown on the first electrode do not carry weight in a claim drawn to structure, wherein the second ferroelectric film is selectively grown on the third electrode’ of claim 1 do not carry weight in the claim draw to structure. In re Thorpe, 277 USPQ 964 (Fed. Cir. 1985).

Regarding claims 10-11, the process limitations 'wherein the first ferroelectric film is grown to be self-organized by physical or chemical interaction and the second ferroelectric film is grown to be self-organized by physical or chemical interaction' and 'wherein each of the first and second ferroelectric films is grown in a vapor phase or in a liquid phase' do not carry weight in a claim drawn to structure. In re Thorpe, 277 USPQ 964 (Fed. Cir. 1985).

Regarding claims 12-14, Hasegawa discloses a memory device wherein the capacitors constituting the first and second capacitor array layers are respectively connected to selective switching devices, 112, thereby forming respective memory cells, fig. 30, wherein each of the selective switching devices is formed on the substrate or between the substrate and the third electrode, fig. 30, wherein the selective switching devices are transistors, column 8 line 24.

Regarding claim 15, Hasegawa discloses a memory device wherein the selective switching device respectively connected to the capacitors constituting the second capacitor array layer are formed in the second capacitor array layer, fig. 30.

Regarding claims 17-18, Hasegawa discloses the memory device, wherein means for electrically connecting the memory cells included in the second capacitor array layer to one another is provided between the first and second capacitor array layers or on the second capacitor array layer, wherein means for electrically connecting the memory cells included in the first capacitor array layer to the memory cells included in the second capacitor array layer is provided between the first and second capacitor array layers, fig. 30 and 32.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 2, 9, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6727536 to Hasegawa et al in vie of US 6491889 to Lee et al.

Regarding claims 2 and 9, Hasegawa does not disclose the memory wherein the ferroelectric film is made of a single crystal or a single domain.

However, Lee reference discloses the ferroelectric single crystal. At the time the invention was made; it would have been obvious to one of ordinary skill in the art to use the ferroelectric single crystal teaching of Lee to replace the ferroelectric material 14 of Hasegawa, because it would have created a memory cell with good electromechanical and electrical properties as taught by Lee, see abstract.

Regarding claim 16, Hasegawa does not disclose the switching device is a thin film transistor. However, at the time the invention was made; it would have been obvious to one of ordinary skill in the art to use the teaching of Hasegawa to connect to different devices for intended use.

Conclusion

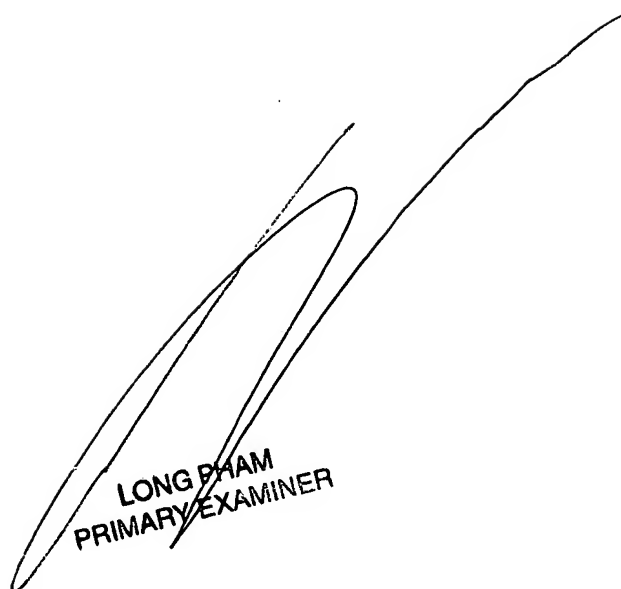
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thao X Le whose telephone number is (571) 272-1708. The examiner can normally be reached on M-F from 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael M Fahmy can be reached on (571) 272 -1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thao X. Le
30 July 2004

Art Unit: 2814



LONG PHAM
PRIMARY EXAMINER